REMARKS

This application has been carefully reviewed in light of the Office Action dated May 27, 2010. Claims 9, 10, 12, 13, and 15 are presented for examination, of which Claim 9 and 13 are in independent form. Claims 11 and 14 have been previously withdrawn from consideration. Applicant requests favorable reconsideration and allowance of the subject application.

The drawings were objected to for allegedly not showing that the "light emitting diode die is mounted face down on the light emitting diode printed circuit board". (Emphasis added). Applicant notes that the statement from the Office Action does not track the language currently recited in Claim 12. Claim 12 recites that the "light emitting diode die is mounted face down to the light emitting diode printed circuit board". (Emphasis added). Applicant notes that the drawings (Figs. 1-3) show this feature recited in Claim 1. Accordingly, Applicant believes that the objection has been obviated and respectfully requests that the objection be withdrawn. If the Examiner disagrees, she is respectfully requested to contact Applicant's undersigned attorney to resolve the objection to the drawings.

Claim 9 was rejected under 35 U.S.C. § 102(b) as being unpatentable over U.S. Pat. Appln. Pub. 2002/0149102 (Hashemi et al.; hereinafter "Hashemi").

Also, Claim 10 was rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Pat. Appln. Pub. 2002/0149102 (Hashemi et al.; hereinafter "Hashemi") in view of U.S. Pat. Appln. Pub. 2002/0167016 (Hoelen et al.; hereinafter "Hoelen"). Claim 12 was rejected under 35 U.S.C. § 103(a) over Hashemi, in view of U.S. Pat. Appln. Pub. 2003/0189829 (Shimizu et al.; hereinafter "Shimizu"). Claim 12 was also rejected under

under 35 U.S.C. § 103(a) over Hashemi, Hoelen, and in view of Shimizu; and Claims 13 and 15 were rejected over Hashemi in view of U.S. Pat. 6,614,103 (Durocher et al.; hereinafter "Durocher"). Applicant traverses the rejections of the claims and submits that independent Claims 9 and 13, together with the claims dependent therefrom, are patentably distinct from the cited art for at least the following reasons.

Claim 9 is directed to a light emitting diode that includes at least one light emitting diode die, arranged on a light emitting diode printed circuit board by means of a die attach. The light emitting diode printed circuit board includes rear side contacts at a lower surface of the printed circuit board. The rear side contacts at least partially overlap with contours of the light emitting diode die and are formed in such a way as to overlap with at least half of the lower surface of the printed circuit board. The printed circuit board comprises a plurality of through-contacts thermally and electrically connecting the rear side contacts to contact areas formed on an upper surface of the printed circuit board.

Among other notable features of Claim 9 is that at least one light emitting diode die is arranged on a light emitting diode printed circuit board by means of a die attach.

Hashemi is not seen to disclose a light emitting diode die, arranged on a light emitting diode printed circuit board by means of a die attach. As understood from Fig. 1 of Hashemi, a semiconductor die 110 is attached to a die attach pad 111 by a die attach 112. However, the semiconductor die 110, which is alleged to correspond to the light emitting diode die of Claim 9, is arranged on a substrate 120, which is distinguished in Hashemi from being a printed circuit board.

First, with respect to Fig. 1, paragraph [0032] of Hashemi describes a structure (100), where the semiconductor die (110) is mounted onto a substrate (120) by die attach (112) by applying an additional die attach pad (111). Hashemi provides that the entire structure 100 is attached to a printed circuit board (PCB) 150 in Fig. 1. That is, in Hashemi, the semiconductor die (110) is not mounted onto a printed circuit board. Moreover, at paragraph [0016] Hashemi differentiates between a "substrate" and a "printed circuit board (PCB)", thus clearly distinguishing between these two features which would not be seen to be the same or substitutes by one of ordinary skill in the art. It is stated in paragraph [0016] that the "invention" of Hashemi "comprises a substrate having a top surface for receiving two or more semiconductor dies" and "further comprises a printed circuit board attached to a bottom surface of the substrate."

Applicant also notes that paragraph [0016] of Hashemi states that "the substrate can comprise organic material such as polytetrafluoroethylene material or an FR4 based laminate material" which would suggest to one of ordinary skill in the art that the substrate discussed in Hashemi cannot in fact also be a printed circuit board.

Additionally, it is notable that Hashemi explicitly avoids mounting the semiconductor die (110, Fig. 1) onto the PCB based on the drawbacks described in detail in paragraph [0011].

Accordingly, Applicant submits that Hashemi not only fails to show the above-noted feature of Claim 1, but explicitly teaches away from that feature, i.e., the at

least one light emitting diode die being arranged on the light emitting diode printed circuit board by means of a die attach.

Second, Applicant notes that a semiconductor die (i.e., semiconductor die 110 of Fig. 1 of Hashemi) does not expressly disclose or anticipate a light emitting diode die, and nothing in Hashemi is seen to disclose that the semiconductor die discussed therein is constructed as a light emitting diode die. Therefore, for at least this reason, Claim 9 is believed to be allowable over Hashemi.

Accordingly, Applicant submits that Claim 9 is clearly allowable over Hashemi and respectfully requests withdrawal of the rejection under 35 U.S.C. § 102(b).

Independent Claim 13 recites features similar to those discussed above with respect to Claim 9. Claim 13 is believed to be patentable over Hashemi for the same reasons discussed above in connection with Claim 9.

Also, Durocher was cited in the Office Action as teaching an "additional board 41 comprises a further plurality of through-contacts 51 thermally and electrically connecting at least one of the further contact areas to a solder area 47 formed at the bottom 45 of the additional board." See, Office Action, page 7, lines 4-7. However, Durocher is not seen to remedy the above deficiencies of Hashemi as a reference against Claim 13. Thus, Claim 13 is clearly patentable over those references, whether considered alone or in combination.

A review of the other art of record has failed to reveal anything that, in Applicant's opinion, would remedy the deficiencies of the art discussed above, as

references against the independent claims herein. Therefore, those claims are respectfully submitted to be patentable over the art of record.

The other claims in this application depend from one or another of the independent claims discussed above, and, therefore, are submitted to be patentable over the art relied on in the Office Action for the same reasons.

Applicant's undersigned attorney may be reached in our Costa Mesa, CA office by telephone at (714) 540-8700. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

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